

**What is claimed is:**

1       1. A PDA, wherein the PDA outputs a current within  
2       a first current range to an external device when supplied  
3       with a battery power and outputs a current within a  
4       second current range to the external device when supplied  
5       with external power through an adapter, comprising:

6           a main device, for performing necessary data  
7           processing, enabling a control signal when  
8           supplied with external power through the  
9           adapter;

10          a switch device comprising a first input terminal  
11           • receiving battery power, a second input  
12           terminal receiving external power, a control  
13           terminal receiving the control signal, and an  
14           output terminal outputs battery power when the  
15           control signal is disabled and outputs external  
16           power when the control signal is enabled;

17          a current limiting device coupled to the output  
18           terminal of the switch device, wherein the  
19           current limiting device outputs a current  
20           within the first current range to the external  
21           device when the switch device outputs battery  
22           power, and outputs a current within the second  
23           current range to the external device when the  
24           switch device outputs external power.

1       2. The PDA as claimed in claim 1, the current  
2       limiting device further comprising:

3       an impedance device for providing a first impedance  
4                    and a second impedance, wherein the impedance  
5                    device outputs the first impedance when the  
6                    control signal is disabled and outputs the  
7                    first and the second impedances when the  
8                    control signal is enabled; and

9        a current limiting module coupled to the output  
10                   terminal of the switching device, wherein the  
11                    current limiting module outputs the current  
12                    within the first current range when receiving  
13                    the first impedance and outputs the current  
14                    within the second current range when receiving  
15                    the first and the second impedances.

1        3. The PDA as claimed in claim 2, wherein the  
2                    external device is a printer.

1        4. The PDA as claimed in claim 1, wherein the  
2                    external device is a digital camera.

1        5. The PDA as claimed in claim 2, wherein the  
2                    current limiting module is a current limiting integrated  
3                    circuit(IC) MIC2544 or MIC2548.

1        6. The PDA as claimed in claim 5, wherein a fourth  
2                    pin of the current limiting integrated circuit is coupled  
3                    to the impedance and wherein a maximum value of an output  
4                    current ( $I_{Limit}$ ) of the current limiting integrated circuit  
5                    is limited by the impedance ( $R_{SET}$ ) provided by the  
6                    impedance device in accordance with the formula

7        
$$I_{Limit} = \frac{230V}{R_{SET}}$$

1           7. The PDA as claimed in claim 2, the PDA and the  
2 external device are connected by a cable.

1           8. The PDA as claimed in claim 2, wherein the  
2 first current range is smaller than the second current  
3 range.

1           9. The PDA as claimed in claim 2, wherein the  
2 impedance device comprises:

3           a first resistor, coupled between the current  
4 limiting module and a voltage level (Gnd), for  
5 providing the first impedance;

6           a second resistor for providing the second  
7 impedance; and

8           a selecting device serially connected to the second  
9 resistor, wherein both the selecting device and  
10 the second resistor are coupled between the  
11 current limiting device and the voltage level  
12 (Gnd), wherein the selecting device is turned  
13 off and the limiting module receives only the  
14 first impedance when the control signal is  
15 disabled, and wherein the selecting device is  
16 turned on and the limiting module receives the  
17 first and the second impedances when the  
18 control signal is enabled.

1           10. The PDA as claimed in claim 9, wherein the  
2 selecting device is an N-type transistor having a gate  
3 receiving the control signal, a drain coupled to the  
4 second resistor, and a source coupled to the voltage  
5 level (Gnd).

1           11. The PDA as claimed in claim 1, wherein the  
2 selecting device is a P-type transistor having a gate  
3 receiving the control signal, a drain coupled to the  
4 voltage level (Gnd), and a source coupled to the second  
5 resistor.

1           12. A current limiting device built into a PDA,  
2 wherein the PDA is used as a host and is connected to an  
3 external device, wherein the current limiting device  
4 outputs a current within a first current range to the  
5 external device when the PDA is supplied with battery  
6 power, and wherein the PDA enables a control signal and  
7 the current limiting device outputs a current within a  
8 second current range to the external device when the PDA  
9 is supplied with external power through an adapter,  
10 comprising:

11           a switch device comprising a first input terminal  
12           receives battery power, a second input terminal  
13           receives external power, a control terminal  
14           receives the control signal, and an output  
15           terminal outputs battery power when the control  
16           signal is disabled and outputs external power  
17           when the control signal is enabled;  
18           a current limiting module coupled to the output  
19           terminal of the switching device;  
20           a first resistor, coupled between the current  
21           limiting module and a voltage level (Gnd), to  
22           provide a first impedance;  
23           a second resistor for providing a second impedance;  
24           and

25       a selecting device serially connected with the  
26       second resistor, wherein both the selecting  
27       device and the second resistor are coupled  
28       between the current limiting device and the  
29       voltage level (Gnd), wherein the selecting  
30       device is turned off and the limiting module  
31       receives only the first impedance when the  
32       control signal is disabled, and wherein the  
33       selecting device is turned on and the limiting  
34       module receives the first and the second  
35       impedances when the control signal is enabled.

1           13. The current limiting device as claimed in claim  
2       12, wherein the current limiting module is a current  
3       limiting integrated circuit MIC2544 or MIC2548.

1           14. The current limiting device as claimed in claim  
2       12, wherein the first current range is smaller than the  
3       second current range.

1           15. The current limiting device as claimed in claim  
2       13, wherein a fourth pin of the current limiting  
3       integrated circuit is coupled to the impedance and  
4       wherein a maximum value of an output current ( $I_{Limit}$ ) of  
5       the current limiting integrated circuit is limited by the  
6       impedance ( $R_{SET}$ ) provided by the impedance device in  
7       accordance with a relationship formula  $I_{Limit} = \frac{230V}{R_{SET}}$  .

1           16. The current limiting device as claimed in claim  
2       12, wherein the selecting device is an N-type transistor  
3       having a gate receiving the control signal, a drain

4       coupled to the second resistor, and a source coupled to  
5       the voltage level (Gnd) .

1           17. The current limiting device as claimed in claim  
2       12, wherein the selecting device is a P-type transistor  
3       having a gate receiving the control signal, a drain  
4       coupled to the voltage level (Gnd), and a source coupled  
5       to the second resistor.